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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,719	03/29/2004	Michael A. Rothman	42P18654	1421

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EXAMINER	
HOANG, DANIEL L	

ART UNIT	PAPER NUMBER
2436	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/811,719	ROTHMAN ET AL.	
	Examiner	Art Unit	
	DANIEL L. HOANG	2436	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18 and 20-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18, 20-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

RESPONSE TO ARGUMENTS

Applicant's arguments with respect to claims 1, 12, and 20 have been considered but are moot in view of the new ground(s) of rejection.

CLAIMS PRESENTED

Claims 1-18, 20-25 are presented.

CLAIM REJ2CTIONS

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-6, 9-16, 20-25 rejected under 35 U.S.C. 103(a) as being unpatentable over Reinert, US Patent No. 6347375, and further in view of Arnold, US Patent No. 6279128.

As per claim 1, 12, 20:

Reinert teaches:

A method, comprising:

initializing a virus scanner during a pre-boot phase of a computer system;

[see col. 7, lines 46-59]

scrubbing data read from an input/output (I/O) device of the computer system during the pre-boot phase by the virus scanner using a virus signature database before the data is loaded, wherein the virus signature database is stored in a place not exposed to the operating system and is updated during the pre-boot phase; and

[see col. 8, lines 20-45, wherein the virus signature file is downloaded and stored in the computers local memory, away from the hard disk and not exposed to the operating system]]

enacting a platform policy if a virus is detected in the data.

[see col. 8, lines 46-60]

Reinert has been discussed above. Reinert is mute in teaching "determining whether to perform a memory scrub based on a platform policy". For this limitation, examiner relies upon the Arnold reference. Arnold teaches an autonomous system for recognition of patterns formed by stored data during computer memory scrubbing (see col. 3, lines 65-67, and col. 4, lines 1-21). It would have been obvious to one of ordinary skill in the art to modify the invention taught by Reinert to implement the memory scrubbing techniques taught by Arnold so that it would be possible to uncover inactive computer virus signatures in a memory subsystem. Doing so during the pre-boot phase, as suggested by the Reinert invention would allow the scrubbing to be done passively and autonomously and transparently as desired by Arnold. (see col. 3, lines 54-62)

As per claim 2, Reinert teaches:

The method of claim 1, further comprising scrubbing contents of a memory device of the computer system during the pre-boot phase by the virus scanner.

[see col. 8, lines 24-32]

As per claim 3, 13, Reinert teaches:

The method of claim 1, further comprising updating the virus signature database with updated virus signatures.

[see col. 8, lines 33-35]]

As per claim 4, Reinert teaches:

The method of claim 3 wherein the virus signature database is updated during the pre-boot phase.

[see col. 7, lines 60-67 and col. 8, lines 1-19, wherein control of the computer is transferred to the remote computer prior to loading of the operating system and the remote computer keeps the virus signature file up to date]

As per claim 5, 14, Reinert teaches:

The method of claim 1 wherein the virus signature database is not exposed to an operating system executing on the computer system.

[see rejection of claim 1]

As per claim 6, 22, Reinert teaches:

The method of claim 5 wherein the virus signature database is stored in a firmware-reserved area.

[see rejection of claim 1, wherein the virus signature file is stored in the local memory]

As per claim 9, 15, 24, Reinert teaches:

The method of claim 1 wherein the virus scanner is operable during the pre-boot phase, an operating system (OS) runtime phase, and an after-life phase of the computer system independent of an operating system of the computer system.

[see col. 7, lines 27-45]

As per claim 10, 16, 25, Reinert teaches:

The method of claim 1 wherein the virus scanner scrubs the data without having knowledge of a file system of the data.

[see col. 8, lines 30-35]

As per claim 11, Reinert teaches:

The method of claim 1, further comprising enacting the platform policy if the virus scanner detects non-normal behavior within the computer system.

[see col. 8, lines 46-60]

As per claim 21, Reinert teaches:

The computer system of claim 20, further comprising a network interface operatively coupled to the processor, the virus scanner to scrub data read from the network interface using the virus signature database before the data is loaded in the memory device.

[see col. 8, lines 61-67]

As per claim 23, Reinert teaches:

The system of claim 20 wherein execution of the firmware instructions further perform operations comprising updating the virus signature database with updated virus signatures downloaded from an external virus signature repository communicatively coupled to the computer system.

[see col. 8, lines 20-25]

1. Claims 7-8 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinert and Arnold, as applied to claim 1 above, and further in view of Ho, US Patent No. 7188369

As per claim 7, 17:

The Reinert reference has been discussed above. Reinert does not disclose:

The method of claim 1 wherein the virus scanner is executing in a virtual machine monitor (VMM) executing on the computer system, the VMM supporting at least one virtual machine (VM) executing on the computer system, wherein the VM executes an operating system that is different from the VMM and the operating systems executed by other VMs.

Ho teaches the above limitations not disclosed by Reinert.

[see col. 5, lines 25-67]

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Reinert reference to incorporate executing the virus scanner on a virtual machine monitor as taught by Ho because a VMM can be hosted and run as an application on top of a host operating system. Doing so would allow the virus scanner to execute without loading of the local computer's operating system.

As per claim 8, 18, Reinert teaches:

The method of claim 7 wherein scrubbing data read from the I/O device includes: receiving a request from a requester to read data from the I/O device, the requester in a VM of the at least one VM; loading at least a portion of the requested data into a buffer; scrubbing the at least a portion of the requested data with the virus scanner; returning an error signal to the requester if the virus scanner detects a virus in the at least a portion of the requested data; and forwarding the requested data to the requester if the virus scanner does not detect a virus in the at least a portion of the requested data.

[see figure 3]

POINTS OF CONTACT

*. Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

Commissioner for Patents
P.O. Box 1450

Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulaney Street
Alexandria, VA 22314

*. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L. Hoang whose telephone number is 571-270-1019. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Daniel L. Hoang/

Examiner, Art Unit 2436

/Nasser G Moazzami/

Supervisory Patent Examiner, Art Unit 2436